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INDUSTRIAL CONTROL, POWER & INSTRUMENTATION CABLE SPECIALIST · WWW.FEICHUNCABLES.COM

DOCUMENT FC-PDS-MTO-N2XCH-2026-007
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CLASS Product Data Sheet | Medium-Voltage Mining Trailing · HV Power · LSZH Concentric Cables
STANDARDS IEC 60502 | IEC 60228 | HD 603/IEC 60227 | VDE 0276 | IEC 60332

PRODUCT SPECIFICATION — MEDIUM-VOLTAGE MINING TRAILING CABLES (6 KV / 10 KV) · LSZH CONCENTRIC POWER CABLE (1 KV) · RUBBER-INSULATED · HEAVY-DUTY INDUSTRIAL

MTO-SB 3×35+3×10 6kV | MTO-RF K 3×50+2×25+1×16 10kV | N2XCH 3×120/70 1kV

Two medium-voltage heavy-duty mining trailing cables and one LSZH concentric-screened power cable for demanding industrial and infrastructure applications.
EPR / Rubber Insulation | Steel-Braid Armour | XLPE Insulated Power | 70 mm² Concentric Cu Screen | Low-Smoke Zero Halogen Sheath

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FC EPR / XLPE / LSZH | 6 kV · 10 kV · 1 kV | MINING TRAILING | CONCENTRIC SCREEN | IEC 60502

★ FEICHUN CABLE SERIES

3-Variant Range
MV & HV Power

Mining Trailing · Concentric Power
16 mm² – 120 mm² · EPR · XLPE · LSZH

Feichun Engineering Cables · RoHS Compliant · IEC/VDE

● MTO SERIES — MEDIUM-VOLTAGE MINING TRAILING CABLES 6 KV / 10 KV

● MTO SERIES — FAMILY OVERVIEW

★ HEAVY-DUTY MINING TRAILING & DRAG CABLE

The **MTO-SB** and **MTO-RF K** series are purpose-built medium-voltage **flexible mining trailing cables** designed for the continuous motion power feeds of open-cast excavators, bucket-wheel reclaimers, large mobile harbour cranes, and dragline machinery. Both series employ **ethylene-propylene rubber (EPR) insulation** and a heavy-duty rubber outer sheath to deliver the extreme flexibility, oil resistance, and mechanical robustness required when cables are subjected to continuous reeling, dragging, and crushing loads on mine floors. The steel-braid armour layer provides additional protection against mechanical damage and serves as an integral low-impedance protective earth path. Conductor strand architecture follows Class 5 or Class 6 per IEC 60228 to ensure fatigue resistance under cyclic flexing. The designation suffix "**SB**" denotes steel-braid armour, while "**RF K**" indicates a reinforced (cable-chain–grade) construction with heavy-duty steel cord reinforcement designed to withstand higher tensile loading in trailing-chain applications.

6 kV — MTO-SB | 10 kV — MTO-RF K

● MTO-SB 3×35+3×10 6KV — SPECIFICATION



3×35+3×10 mm²
3 main (EPR, blue)
3 aux. (rubber)
SB armour · rubber

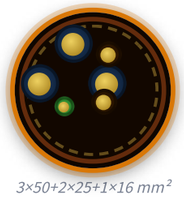
MTO-SB 3×35+3×10 — CORE DATA	
Configuration	3×35 + 3×10 mm²
Voltage rating	6 kV (U₀/U)
Insulation	EPR / rubber compound
Outer diameter	45.0 – 50.0 mm
Armour	Galvanised steel braid (SB)
Outer sheath	Heavy-duty rubber (black)
Copper weight	≈ 1 300 kg/km
Total weight	≈ 3 200 kg/km
Current capacity (main)	≈ 140 A @ 30 °C, free air
Conductor class	IEC 60228 Class 5 / 6

⚠ MEDIUM-VOLTAGE INSTALLATION — SAFETY REQUIREMENTS

● MTO-RF K 3×50+2×25+1×16 10KV — SPECIFICATION

ı REINFORCED CHAIN-TRACK MINING CABLE — 10 KV

The **MTO-RF K** is the higher-voltage counterpart to the MTO-SB, rated at **10 kV** and intended for the primary supply feeders of very large excavating machines where higher supply voltages reduce resistive losses over long trailing lengths. The "**RF K**" suffix designates a **reinforced, chain-rated** construction incorporating high-tensile steel cord reinforcement integrated into the rubber jacket, enabling the cable to function as its own strain-relief element within the cable-chain guide. The mixed conductor bundle — three main power cores at 50 mm², two secondary cores at 25 mm², and one earth/monitoring core at 16 mm² — addresses the multi-circuit requirements of a typical large excavator: main drive supply, auxiliary power, and protective/monitoring circuits in a single trailing cable assembly.



3×50+2×25+1×16 mm²
3× main power (EPR)
2× secondary (EPR)
1× earth — RF armour

MTO-RF K 3×50+2×25+1×16 — CORE DATA	
Configuration	3×50 + 2×25 + 1×16 mm²
Voltage rating	10 kV (U₀/U)
Insulation	EPR — high-voltage grade
Outer diameter	55.0 – 62.0 mm
Reinforcement	Steel cord (RF chain-rated)
Outer sheath	Reinforced rubber (black)
Copper weight	≈ 2 100 kg/km
Total weight	≈ 4 800 kg/km
Current capacity (main)	≈ 170 A @ 30 °C, free air
Conductor class	IEC 60228 Class 5 / 6

⚠ HIGH-VOLTAGE — 10 KV CLASS RESTRICTIONS

At 10 kV, this cable falls within the medium-high-voltage class. Terminations require **stress-control technology** (heat-shrink or cold-applied stress-relief cones) to manage electric field concentration at screen cut-backs. Cable joints must be factory or workshop prefabricated with type-tested joint kits. On-site straight jointing in the mine field is not permitted without approved jointing materials and certified personnel.

● INSTALLATION & HANDLING — BOTH MTO VARIANTS

● N2XCH SERIES — LSZH XLPE POWER CABLE 0.6/1 KV

● N2XCH 3×120/70 1KV — OVERVIEW

ı XLPE INSULATED · CONCENTRIC CU SCREEN · LSZH SHEATH

The **N2XCH 3×120/70** is a three-core, cross-linked polyethylene (XLPE) insulated power cable rated at **0.6/1 kV** and sheathed in a **low-smoke zero-halogen (LSZH) compound** for installation in fire-sensitive environments such as tunnels, metro systems, offshore platforms, and public buildings. The cable designation follows the HD/VDE coding: *N* = VDE standard, *2X* = XLPE insulation, *C* = concentric conductor, *H* = halogen-free outer sheath. The suffix **/70** identifies the **70 mm² equivalent concentric copper wire screen** applied over the insulated core bundle. This concentric screen serves the dual function of a **protective earth (PE) conductor** and an electromagnetic screening layer, simplifying the protective earthing design in installations where a separate earth conductor would otherwise be required. XLPE insulation provides a **maximum conductor temperature of 90 °C** in normal operation and 250 °C under short-circuit conditions, substantially improving ampacity compared with PVC alternatives.

0.6/1 kV



3×120/70 mm²
3× XLPE (120 mm²)
70 mm² concentric Cu
LSZH sheath (black)

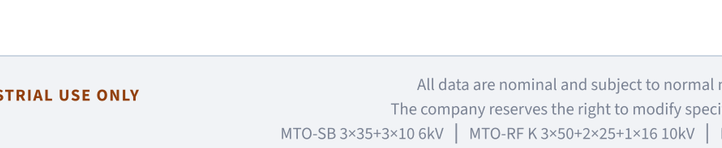
N2XCH 3×120/70 — CORE DATA	
Configuration	3×120 / 70 mm²
Voltage rating	0.6/1 kV (U₀/U)
Insulation	XLPE — 90 °C rated
Concentric screen	70 mm² Cu wire (PE/screen)
Outer sheath	LSZH — halogen-free
Outer diameter	42.0 – 46.0 mm
Copper weight	4 128 kg/km
Total weight	≈ 5 500 kg/km
Ampacity — free air	≈ 340 A @ 30 °C
Ampacity — direct buried	≈ 353 A @ 20 °C soil

✓ CONCENTRIC SCREEN — DUAL FUNCTION PE + EMC

The 70 mm² concentric copper wire screen simultaneously fulfils two roles: it acts as the **protective earth (PE) conductor**, eliminating the need for a separate earth core, and provides an **electrostatic screen** that reduces electric field emission from the energised cores. In TN-S and TT supply systems, the concentric screen must be connected to the system earth at both ends. In systems requiring single-point earthing for earth-fault monitoring, only one end is earthed and an insulating joint is provided at the remote end.

All MTO series cables operate at medium voltage. Installation, jointing, and termination work **must be carried out by qualified high-voltage personnel** in accordance with the applicable national electrical safety regulations and mine safety acts. Electrical clearances, cable route management, and protective relaying must comply with IEC 60364-7-704 (construction site / temporary installations) or the equivalent national mining electrical standard. The steel-braid armouring must be connected to the mining machine frame and the supply transformer's protective earth at both ends.

- **Minimum dynamic bend radius:** 8 × outer diameter for continuous reeling duty (trailing application). For static installation in cable chain the manufacturer's chain-specific table applies.
- **Reeling drum design:** Drum barrel diameter must not be less than 16 × O.D. for MTO-SB or 20 × O.D. for MTO-RF K to avoid insulation stress during storage on drum.
- **Earth continuity:** The steel braid / steel cord reinforcement must be used as the protective earth conductor. A supplementary bare copper earth conductor is not required where the armour cross-section meets the calculated fault-current requirement.
- **Operating temperature:** −25 °C to +90 °C continuous (EPR insulation). Sheath rated −40 °C (cold-bend qualified) to +60 °C ambient.
- **Drum storage:** Upright on flange in a covered facility. Do not stack drums horizontally. Max. drum storage temperature +50 °C.



- **Fire performance:** LSZH sheath complies with IEC 60332-3 (flame spread test, bunched cables) and IEC 61034 (low smoke density). Halogen acid gas emission is verified per IEC 60754.
- **Direct-buried installation:** Suitable for direct burial without additional mechanical protection where soil conditions are not aggressive. In rocky terrain, a protective tile or warning tape must be installed above the cable.
- **Maximum conductor temperature:** 90 °C continuous; 130 °C under emergency overload; 250 °C under short-circuit (5 s maximum). Select over-current devices accordingly.

CONSOLIDATED VARIANT TABLE — ALL THREE PRODUCTS

TYPE & SERIES	CONFIG.	U (KV)	Ø (MM)	CU KG/KM	TOTAL KG/KM	I (A)†
MTO-SB Mining	3×35+3×10	6	45–50	≈1300	≈3200	≈140
MTO-RF K Mining	3×50+2×25+1×16	10	55–62	≈2100	≈4800	≈170
N2XCH LSZH	3×120/70	0.6/1	42–46	4128	≈5500	340/353‡

† Ratings at 30 °C (20 °C soil for buried). ‡ Format = free-air / direct-buried ampacity. All values nominal; manufacturing tolerances per IEC 60502 / applicable standard.

STANDARDS & CLASSIFICATION

- `IEC 60502-2` — Power cables with extruded insulation, rated voltage 6 kV – 30 kV
- `IEC 60502-1` — Power cables with extruded insulation, up to 1 kV (N2XCH)
- `IEC 60228 Class 5/6` — Flexible conductor classification for mining trailing cables
- `IEC 60364-7-704` — Electrical installations for construction sites and mining
- `VDE 0276 / HD 603` — Power distribution cables, European harmonised document
- `IEC 60332-3 / IEC 61034` — Flame propagation and smoke density (LSZH)
- `IEC 60754` — Halogen acid gas emission test for LSZH sheath materials
- RoHS / REACH compliant across all variants listed in this document

EPR Insulated | 6 kV / 10 kV MV | Steel-Braid / RF Armour
XLPE Insulated | LSZH Sheath | Concentric Cu 70mm²
Mining Trailing | Flame Retardant | RoHS Compliant

ORDERING REFERENCE & CONTACT

Specify cables using the full type designation, e.g. `MTO-SB 3×35+3×10 6kV`, `MTO-RF K 3×50+2×25+1×16 10kV`, `N2XCH 3×120/70 0.6/1kV`. Custom drum lengths, alternative cross-sections, and armoured N2XCH variants available on request. MTO series may be supplied in custom mixed-conductor configurations for specific machine supply requirements.

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